SAT Report for Case # P-15-0487

General

[redacted]

Report Status: Complete **Status Date:** 06/11/2015
CRSS Date: 06/11/2015 **SAT Date:** 06/12/2015 **SAT Chair:** K.Moran
Consolidated PMN?
Consolidated Set: P-15-0488, P-15-0489, P-15-0490, P-15-0491
Submitter: Daewoo International USA Corp
CAS Number: None
Ecotox Related Cases: [redacted]
Health Related Cases: ANALOGS: [redacted]
Chemical Name: Multi-walled carbon nanotubes
Use: Additive for electro-static discharge (ESD) in electronic devices, electronics, and materials ([redacted] additive for weight reduction in materials ([redacted] additive to improve mechanical properties or electrical conductivities ([redacted] a heat-generating element in heating devices and materials ([redacted] additive for heat transfer and thermal emissions in electronic devices and materials ([redacted] semi-conductor, conductive, or resistive element in electronic circuitry and devices ([redacted] additive to improve conductivity in electronic circuitry, energy storage systems, and devices ([redacted] electron emitter for lighting and x-ray sources ([redacted] additive for electromagnetic interface (EMI) shielding in electronic devices ([redacted] additive for electrodes in electronic materials and electronic devices ([redacted] catalyst support in chemical manufacturing ([redacted] coating additive to improve corrosion resistance or conductive properties ([redacted] additive for fibers in structural and electrical applications ([redacted] additive for fibers in fabrics and textiles ([redacted] filter additive to remove nanoscale materials ([redacted] semi-conducting compounding additive for high-voltage cable ([redacted] and additive for super-hydrophobicity ([redacted] Consoildated Set: P-15-487, P-15-488, P-15-489, P-15-490, adn P-15-491.
Trade name: K-Nanos-100P Grade; K-Nanos-100T Grade
PV Max (kg/yr): [redacted]
Ecotox Assessor: A.Kennedy **Fate** A. **Health**

	Assessor: Mamantov	**Assessor:**

Physical Chemical Information

Molecular Weight:	100000.00	**Physical State - Neat:**	[redacted]		
Percent 500:		**Percent 1000:**			
Melting Point (Measured):		**Melting Point (est):**		**MPD (EPI):**	
Vapor Pressure:		**Vapor Pressure (est):**	<0.000001	**VP (EPI):**	
Water Solubility:		**Water Solubility (EST):**	<0.000001	**Water Solubility (EPI):**	
Log Kow:				**Log Kow (EPI):**	
Log P:		**Log P Comment:**			

SAT Concern

Ecotox Rating (1):	1	**Ecotox Rating Comment (1):**	
Ecotox Rating (2):		**Ecotox Rating Comment (2):**	
Health Rating (1):	2	**Health Rating Comment (1):**	
Health Rating (2):		**Health Rating Comment (2):**	

PBT Ratings

Persistence	Bioaccumulation	Toxicity	Comments

Persistence	Bioaccumulation	Toxicity	Comments
3	1	2	

Exposure Based Review (Health)?	N
Exposure Based Review (Ecotox)?	N
SAT Keywords:	LUNG, ONCO, MUTA, IMMUNO

Fate Assessment Summary:	P-15-0487-91 FATE: Solid S < 0.001 mg/L at 25 °C (E) VP < 1.0E-6 torr at 25 °C (E) BP > 400 °C (E) H < 1.00E-8 (E) POTW removal (%) = 0-90 via possible sorption Time for complete ultimate aerobic biodeg > mo Sorption to soils/sediments = low - v.strong PBT Potential: P3B1 *CEB FATE: Migration to ground water = negl - rapid
Removal in WWT/POTW (Overall):	0-90

Condition	Rating Values w/ Rating Description	Comment
WWT/POTW Sorption:	1-4	
WWT/POTW Stripping:	3-4	
Biodegradation Removal:	1	
Biodegradation Destruction:	1	
Aerobic Biodeg Ult:	4	
Aerobic Biodeg Prim:		

Condition	Rating Values w/ Rating Description	Comment
Anaerobic Biodeg Ult:	4	
Anaerobic Biodeg Prim:		
Hydrolysis (t1/2 at pH 7,25C) A:	4	
Hydrolysis (t1/2 at pH 7,25C) B:		
Sorption to Soils/Sediments:	1-4	
Migration to Ground Water:	1-4	
Photolysis A, Direct:		
Photolysis B, Indirect:		
Atmospheric Ox A, OH:		
Atmospheric Ox B, O3:		

Health Assessment

Health Summary:	Poor absorption all routes for the fraction <100 nm (pchem/analog). There is concern for lung effects (i.e., lung overload and lung cancer) if poorly soluble respirable particulates and fibers are inhaled. Uncertain concern for mutagenicity and immunotoxicity for nano materials.
Routes of Exposure:	Dermal Drinking Water Inhalation

Test Data Submitted

Test Data Submitted:	Acute Inhalation LC50 > 0.83 mg/m3 in rats; acute oral LD50 > 300 mg/kg bw rats; acute dermal LD50 > 2000 mg/kg-bw in rats; 28-day inhalation repeated Dose NOAEL = 1 mg/m3 in rats (highest test concentration); 13/26-week repeated dose NOAEL = 1.01 mg/m3 in rats (highest dose tested). These data need review to determine relevancy of reported effects considered by the submitter not to be related to the test substance.

Ecotox Assessment

Test organism	Test Type	Test Endpoint	Predicted	Measured	Comments
Fish	96-h	LC50	*		
Daphnid	48-h	LC50	*		
Green Algae	96-h	EC50	*		
Fish	-	Chronic Value	*		
Daphnid	-	Chronic Value	*		
Green Algae	-	Chronic Value	*		

Factors	Most Sensitive Endpoint	Assessment Factor	CoC	Comment
Acute Acquatic:		5		acute/chronic; *
Chronic Acquatic:		10		acute/chronic; *

Ecotox Route of Exposure?	All releases to water

Factors	Values	Comments
SARs:	Neutral Organics	
SAR Class:	Neutral Organics	
TSCA NCC Category?	Nano, Neutral Organics	

Recommended Testing

Ecotox Value Comments

Predictions are based on SARs for Neutral Organics; SAR chemical class = Neutral Organics;

MW 100000; solid with unknown mp (P); S < 0.001 mg/L at 20C (P); pH7; effective concentrations based on 100% active ingredients and nominal concentrations; DW hardness < 150.0 mg/L as CaCO3; and DW TOC <2.0 mg/L;

Ecotox Factors Comments